

## REMARKS

This is responsive to the Final Office Action that was mailed December 27, 2007 (hereinafter "Office Action").

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### Claim Rejections – 35 U.S.C. §102

Claims 1-5, 16-20, and 22-24 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,582,805 issued to Yoshizaki et al. ("Yoshizaki").

Claim 1 recites a method for heating a catalyst bed for startup comprising providing a catalyst bed having an upstream face and a downstream face; providing an electrical heating element positioned along one face of the catalyst bed; passing a small flow of reactants through the electrical heating element and catalyst bed; and heating the electrical heating element to initiate an exothermic reaction at the face of the catalyst bed, wherein the heat of reaction propagates throughout the catalyst bed thereby heating the catalyst bed for start-up.

Claim 16 recites a method for heating a catalyst bed comprising providing a catalyst bed in communication with an electrical heating element; and heating the electrical heating element so as to maintain the desired temperature of the catalyst bed. Yoshizaki does not anticipate a method for heating a catalyst bed comprising: (1) providing a catalyst bed in communication with an electrical heating element and (2) heating the electrical heating element so as to maintain the desired temperature of the catalyst bed.

Claim 22 recites a method for heating a catalyst bed to a desired temperature, comprising positioning an electrical heating element upstream of the catalyst bed; and passing a fluid across the electrical heating element and through the catalyst bed, wherein the catalyst bed is heated to the desired temperature.

As stated by Applicants in Applicants' October 17, 2007 Response, there is no disclosure in Yoshizaki "providing an electrical heating element positioned along one face of the catalyst bed." The Yoshizaki "electrical heating element (44/45) along one face (col. 15, lines 4-6)" cited by the Examiner (Office Action, p. 2) as depicted in FIG. 15 is a band heater that heats from the outside edge of the catalyst carrier. Heating in this manner will require longer heat up times and greater energy input. In contrast, the face

heater as depicted in FIG. 3 of the present invention heats the face of the catalyst bed (Paragraph 0042) and therefore requires less time to heat the catalyst bed for start-up (Paragraph 0005) and correspondingly less energy (Paragraph 0006).

In response, the Examiner respectfully disagrees (Office Action, pp. 5-6). However, the Examiner fails to address the fact that Yoskizaki utilizes a band heater while the present invention utilizes a face heater. As a result, because Yoshizaki fails to teach one or more of the recited elements of claims 1-5, 16-20, and 22-24, reconsideration and withdrawal of the rejection of claims 1-5, 16-20, and 22-24 under 35 U.S.C. §102(b) as being anticipated by Yoshizaki is respectfully requested.

### **Claim Rejections – 35 U.S.C. §102**

Claims 16, 17, and 20 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,512,251 issued to Brunson et al. ("Brunson").

Claim 16 recites a method for heating a catalyst bed comprising providing a catalyst bed in communication with an electrical heating element; and heating the electrical heating element so as to maintain the desired temperature of the catalyst bed. Brunson does not anticipate a method for heating a catalyst bed comprising: (1) providing a catalyst bed in communication with an electrical heating element and (2) heating the electrical heating element so as to maintain the desired temperature of the catalyst bed.

As stated by Applicants in Applicants' October 17, 2007 Response, Brunson discloses a band heater (col. 5, lines 56-59). Heating in this manner will require longer heat up times and greater energy input. In contrast, the face heater as depicted in FIG. 3 of the present invention heats the face of the catalyst bed (Paragraph 0042) and therefore requires less time to heat the catalyst bed for start-up (Paragraph 0005) and correspondingly less energy (Paragraph 0006).

In addition, assuming for the sake of argument that Brunson does disclose all of the elements of claim 16, it is not enough that Brunson discloses all of the elements of claim 16 in isolation. The Federal Circuit requires that Brunson disclose each element of claim 16 as "arranged in the claim." *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452 (Fed. Cir. 1984). Brunson does not disclose the elements of claim 16 as arranged in claim 16.

In response, the Examiner fails to address the fact that Brunson utilizes a band heater while the present invention utilizes a face heater (Office Action, p. 6). As a result, because Brunson fails to teach one or more of the recited elements of claim 16, reconsideration and withdrawal of the rejection of claims 16, 17, and 20 under 35 U.S.C. §102(b) as being anticipated by Brunson is respectfully requested.

**Claim Rejections – 35 U.S.C. §103**

Claims 13-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bayer (U.S. Patent No. 5,562,885) ("Bayer") in view of Helmers (U.S. Patent No. 2,443,423) ("Helmers").

As stated by Applicants in Applicants' October 17, 2007 Response, Bayer discloses an electrical heating element between stacked sheet-metal layers (col. 7, lines 37-54). Heating in this manner will require longer heat up times and greater energy input. In contrast, the face heater as depicted in FIG. 3 of the present invention heats the face of the catalyst bed (Paragraph 0042) and therefore requires less time to heat the catalyst bed for start-up (Paragraph 0005) and correspondingly less energy (Paragraph 0006).

The Examiner respectfully disagrees (Office Action, p. 6). According to the Examiner, heating elements (18, 20, 22, 24) extend thru the front or are positioned upstream of the catalyst bed (13) (Office Action, p. 6). In Bayer, "the length of the heating elements 18, 20, 22, 24 is dimensioned in such a way that at least the leads 56, 58 protrude axially past the end surfaces 17, 19 of the carrier body 13" (col. 6, lines 37-40). However, the electrical heating element is not positioned along the face. As a result, claims 13-21 are not unpatentable over Bayer in view of Helmers. Reconsideration and withdrawal of this rejection is respectfully requested.

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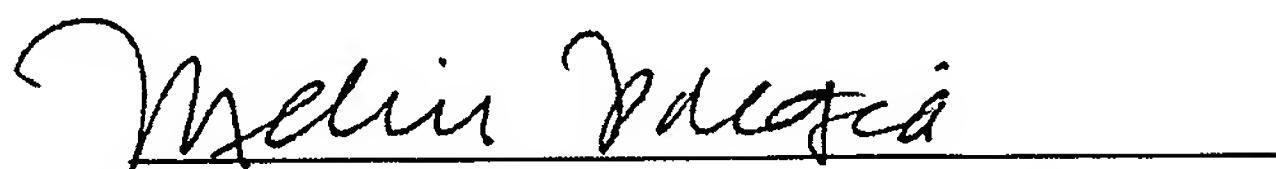
All of the stated grounds of objection and rejection are believed to have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal

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communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Response is respectfully requested.

Respectfully submitted,

  
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